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PROPER WORKHOLDING CRITICAL FOR REPEATABILITY, COST SAVINGS

Larry Robbins, president of SMW Autoblok's commercial division, shares how the right workholding creates the foundation for precise, repeatable results while slashing material and labor costs.

By Melissa Schiller

How can the right workholding benefit your business?

According to Larry Robbins, president of SMW Autoblok's commercial division, using the proper workholding for the job at hand is critical for repeatability and, ultimately, cost savings.

"Having the right workholding dictates the basis for your part being accu-

rate, repeatable, and being makeable time after time – ensuring repeatable results," Robbins says.

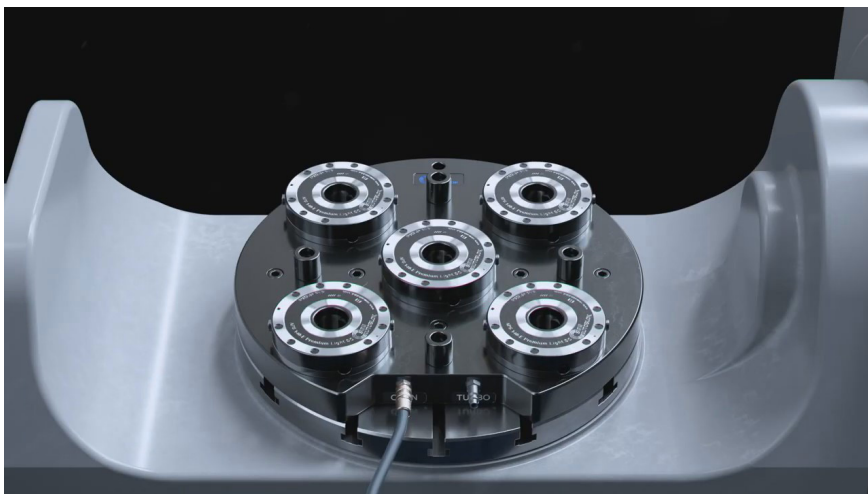
Operators have many kinds of workholding to choose from, he says, from stationary and rotating options to magnetic and O.D./I.D.-based equipment.

SMW Autoblok conducts a large percentage of its business in the defense industry, Robbins says, particularly in gun



The modular IMG vise features three clamping types in one vise, including fixed, double clamping (for easily clamping two workpiece sizes), or self-centering.

With IMG's patented, fully protected operating screw and telescopic system, there is no need to remove jaws to find the best clamping position.

**LEFT**

The flexible APS system allows for positioning and clamping with repeatability of <0.005mm, plus setup time reduction of 90%. APS provides a universal interface system between the machine tool, clamping device, and/or the workpiece with no conventional clamping devices required. All modules are Proofline sealed, protected against corrosion, coolant, and swarf, and feature a built-in air cleaning and part-sensing function to ensure that the clamping system's support surface remains clean and free of chips during changeover or automation.

RIGHT

The CC e-motion electric 4-jaw chuck featuring wireless power and signal transmission (up to a 20mm distance) utilizing an F180 Ethernet base inductive coupler system and high repeatability of <5µm. Whether the application requires highest accuracy or high-low chucking, the individual electro-mechanical single jaw drive of the CC e-motion allows grip force setting to any value as well as automatic radial fine adjustment of the workpiece.

barrel manufacturing. Workholding components for this space generally consist of mandrels to clamp on to the I.D. of a part and finish the O.D. Workholding solutions for defense and munitions must also ensure repeatability and precision, he says, to not only ensure finished products are safe and defect-free, but also that no parts are damaged during machining and ultimately end up scrapped.

"Any gun components are very specialized because they require extremely high finishes, extremely high quality, and extremely tight tolerances," Robbins says. "And because of our experience and our time in the industry, we have learned how to do it better and faster than most of our competition just by having a large com-

plement of standard workholding fully available to us at any one time to look at different situations and people's different applications."

SMW Autoblok's offerings include rotational workholding, such as chucks, mandrels, and collets, as well as magnetic workholding chucks. The company also offers a line of stationary workholding on milling machines, including vertical, horizontal, and 5-axis milling options. SMW Autoblok's product portfolio also includes a line of automation and electronic components that monitor parts' positions during the machining process.

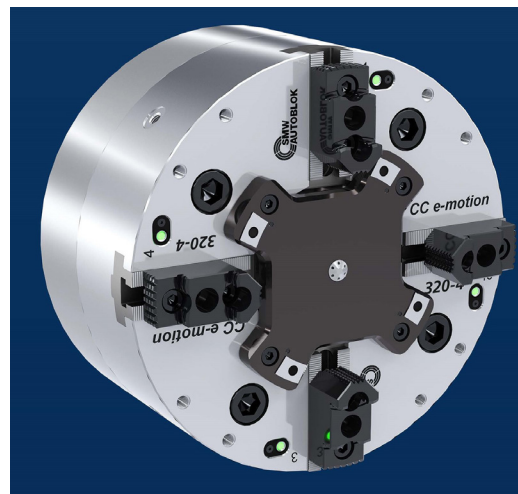
"We're cutting edge with this new electronic or electrical workholding, electric sensor monitoring," Robbins says. "We're from an industry that started out with people turning handles and everything was manual to now, people trying to automate as much as they can."

TOP RIGHT

The electric ZeroAct e-motion module fully automates manufacturing processes using a 24V power supply that operates with a built-in electro-motor. This Zero Point system provides greater flexibility to machining processes and features integrated electronic sensors for contact-free part detection and safety signaling for missing or incorrect positioning.

BOTTOM RIGHT

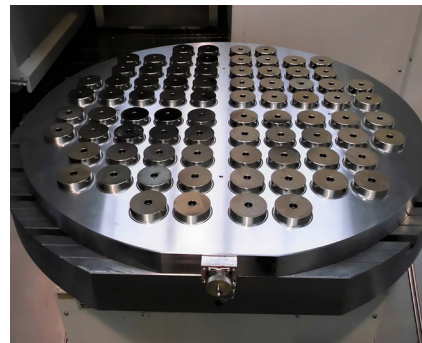
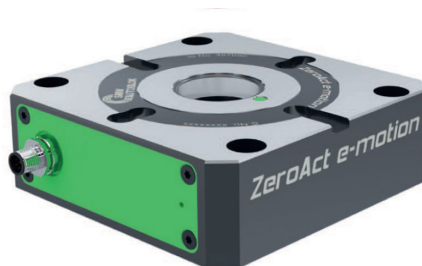
The MillTec round magnetic chuck for 5-axis machining provides 5-side access to the part by being clamped from the base without any obstacle to the tool. With this technology, complex operations are easier to carry out including complete profiling, undercut working, through holes, and creation of pockets.



As one of the oldest companies in the business, SMW Autoblok has tried to keep up with the changing technology as much as possible, he says. The company has completed several key acquisitions during the past few years to keep its product offerings fresh.

"When I first started with this company in the 1980s, we were nothing more than chucks," he says. "Now, along with chucks we have everything."

Robbins notes that SMW Autoblok's strengths lie in application-style workholding that starts with a standard base product. The company then builds special





The MOTIAC Gripper with optional inductive coupler for signal and power transmission allows for 360° rotation of the gripper arm and provides precise, consistent, and monitored gripping operations ideal for moving large and small parts, pallets, and chucks in and out of CNC machines and automated work cells. Incremental measuring system guarantees adjusting gripping pressure, linear positioning, and speed control as standard features.

top jaws or touching features that allow customers to customize a standard chuck to adapt it to their specific applications.

This differs from the way other companies approach workholding, Robbins says, where customers must purchase a special component that's custom made and may not be delivered for up to 30 weeks.

Starting with a standard product and adding specialty top tooling has a distinct advantage, Robbins says. If a customer has an accident and crashes the product, SMW Autoblok can replace the base product quickly because it's a standard product, and the top tools are made in the United States, cutting down on cost and lead times.

SMW Autoblok aims to provide a solution for every application, providing chucks for round parts and milling, turning, and grinding offerings for flat components.

"We happen to work around the fringes of grinding workholding, whether it be rotary grinding, flat grinding, surface grinding, form grinding – whatever the case may be," Robbins says. "We have a solution for every different application. The biggest difference is the machine you're using and how the part is being presented to the machine."

Sensors are becoming just as critical as selecting the correct workholding solution for the task at hand, he says. To keep up with changing customer needs, SMW Autoblok has expanded its offerings into electronics to allow for more streamlined part sensing.

"Historically, in the first operation of any kind of workholding, you can't use part sensing location," Robbins explains. "You have to cheat the system by having buttons that are depressed when a part's loaded into a chuck or a fixture that cuts off air supply, so at least you know your part is present."

Ensuring the part is in the right position is even more difficult, he says, and expanded SMW Autoblok offerings allow operators to monitor and see a part's presence in new ways. By using electrical sensors, the workholding equipment can provide a predictable, repeatable outcome.

When it comes to high-feed milling, Robbins says the biggest threat is the part not being held correctly, or grabbing the part with a tool so aggressively that it's pulled out of the workholding instrument. Workholding providers such as SMW Autoblok have had to get more creative in gripping parts, Robbins says, using carbide grippers to allow for less

friction between components. This helps ensure the part doesn't spin in a chuck or other piece of workholding.

Another common pitfall when it comes to workholding is unsealed equipment that leaves the product open to contamination from coolant and swarf, Robbins says, especially with the use of high-pressure coolants. To address this issue, SMW Autoblok has sealed most of its product offerings, eliminating the risk of contamination while also extending maintenance intervals for the component.

"In the past, the general rule of thumb with chucks or any kind of workholding component was every eight hours of operation, you had to check or grease or put oil in your chuck," Robbins says. "Now, with the new type of workholding, where you have hermetic sealing between components and internals, you can go up to 2,000 hours with no or very little maintenance to be done to those components. And that was the biggest effective change."



SMW Autoblok

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